(5) *Stability test.* Upon the conclusion of the seating test, all persons on one side of the centerline shall disembark. The remaining people should sit upright and not move from their original positions. (Not less than one-half in total number of persons should remain in the lifeboat.) Freeboard to the low point of sheer shall then be measured. This freeboard should, in general, be not less than 10 percent of the depth of the lifeboat.

(c) Motor-propelled lifeboats must pass the tests as required for an oar-propelled lifeboat in §160.035–3. In addition, speed tests over a measured course and fuel consumption tests on a time basis shall be made to determine that the fully loaded motor-propelled lifeboats can maintain a speed of 6 knots for all classes of motor-propelled lifeboats, and that for each class of motor-propelled lifeboat its fuel tanks carry sufficient fuel for at least 24 hours at 6 knots. A 4-hour endurance trial shall be conducted with the fully loaded lifeboat at the RPM attained in the speed test in order to insure that there is no overheating, undue vibration, or other condition which would warrant the belief that the lifeboat could not maintain its proper speed for 24 hours. The time consumed in conducting the speed and fuel consumption tests may be counted toward the 4-hour endurance test. It shall be demonstrated that all engines installed in motor lifeboats can be started by the acceptable cranking system installed with no previous warming up period.

(d) Hand-propelled lifeboats shall be subjected to the same tests as required for an oar-propelled lifeboat. In addition, a test shall be made to assure that the lifeboat can be satisfactorily maneuvered with the hand-propelling gear. A speed of at least three knots shall be achieved in both light and load condition over a measured course of not less than 1,000 feet.

[CGFR 65–9, 30 FR 11467, Sept. 8, 1965, as amended by CGD 72–133R, 37 FR 17040, Aug. 24, 1972]

§160.035–12 Additional preapproval tests required for F.R.P. lifeboats.

(a) *General.* These tests are required in addition to the preapproval tests required for steel lifeboats in §160.035–11. The prototype boat of each size or design submitted will be required to perform satisfactorily in the following tests which will be made in the presence of a marine inspector.

(b) *Strength test.* The following tests described in this paragraph are in lieu of the strength test in §160.035–11(b)(1):

(1) *Suspension tests.* The light lifeboat shall be suspended freely from the releasing gear and the length, beam, and depth measured. Weights shall then be added to equal the weight of the equipment, food, water, and persons to be carried (see §160.035–11(b)(2)(ii)), and the length, beam, and depth measured. Additional weights shall then be added so that the suspended load is 25, 50, 75, and 100 percent greater than the weight of the fully equipped and loaded lifeboat and the measurements taken at each 25 percent increments. (Water may be used for all or any portion of the weight if desired.) All weights shall then be removed and final measurements taken. There shall be no fractures or other signs of excessive stress and no appreciable set as a result of this test.

(2) *Chock test.* The light lifeboat shall be placed on blocks located under the keel at the quarter points and measurements of length, beam, and depth taken. The boat shall be flooded with water equal to the weight of all equipment, food, water, and persons to be carried and measurements of length, beam, and depth taken again. Additional measurements of 25, 50, 75, and 100 percent of the weight of the fully equipped and loaded lifeboat shall be added and the measurements taken at 25 percent increments. If the boat becomes full of water before 100 percent overload is reached, no additional weight need be added, and the last deflection measurements with the boat under load shall be taken at this point. The boat shall be drained and final measurements taken. There shall be no fractures or other signs of excessive stress and no appreciable set as a result of this test.

(3) *Swing test.* The boat shall be loaded with weights equal to the weight of all equipment, food, water and persons to be carried. It shall then be suspended by the releasing gear with falls 20 feet in length so arranged that when

hanging freely the gunwale on one side of the boat is approximately 2 inches from a stationary concrete or steel wall or other structure of similar construction and rigidity. The boat shall then be hauled outboard a horizontal distance of 8 feet from its original position. From this point, the boat shall be allowed to freely swing inboard and strike the wall along one side. There shall be no damage which would render the boat unserviceable.

(4) *Drop test.* The boat shall be loaded with weights equal to the full weight of all equipment, food, water and persons to be carried. The boat shall then be suspended freely from the releasing gear and shall be dropped in a free fall into the water from a height of 10 feet. There shall be no damage which would render the boat unserviceable.

(5) *Thwart test.* A 200-pound sand bag shall be dropped from a height of 6 feet on the center of each thwart span. The thwarts shall not fracture or otherwise be rendered unserviceable.

(6) *Towing test.* With a towline rigged around the forward thwart in the same manner as the sea painter is normally rigged, the fully loaded lifeboat shall be towed at least 1,000 yards at a speed of not less than 5 knots. The boat shall exhibit satisfactory towing characteristics and there shall be no appreciable damage to the thwart.

(7) *Tanks and lockers.* Equipment tanks and watertight lockers shall be tested with not less than 1.0 p.s.i. of air pressure both before and after the tests described in paragraphs (b)(1) through (6) of this section.

§ 160.035–13 Testing and inspection after approval.

(a) *General.* After the design of a lifeboat has been approved, subsequent lifeboats of the same design shall be individually inspected and tested as noted in § 160.035–11(a) for metal lifeboats and paragraph (b) of this section for FRP. lifeboats. In addition, motors and band-propelling gear when installed shall be operated in the ''ahead'', ''neutral'', and ''astern'' positions. If mechanical disengaging apparatus is fitted, it shall be tested by suspending the lifeboat loaded with deadweight equivalent to the number of persons allowed in the lifeboat (165 pounds per person) together with the weight of the equipment, plus 10 percent of the total load, including the weight of the lifeboat. The release lever shall then be thrown over with this load suspended until the lifeboat is released. The apparatus shall be capable of being operated freely by one man, without the use of aids or undue force to the satisfaction of the marine inspector. (This test may be conducted ashore by suspending the lifeboat just clear of the ground.)

(b) *Additional production inspection and tests for FRP. lifeboats*—(1) *Inspection requirements.* Each production model fibrous glass reinforced plastic lifeboat shall as a condition to its being accepted as Coast Guard approved equipment, be examined by a marine inspector at the following stages in its manufacture:

(i) When the major, individual components of the shell and inner hull or buoyancy casing are completed but before they are assembled together. At this stage the marine inspector shall satisfy himself that these components comply with the approved plans and specifications by visual inspection, thickness measurements and comparison of the weights of the components with the weights recorded for the same components in the prototype.

(ii) At the time the internal buoyancy is installed. If block plastic foam is used, it shall be inspected after it has been cut to size and shaped but before it is inserted and covered. The installation shall be completed in the presence of the marine inspector and he shall verify that the required amount is used by weighing the material. If foamed-in-place plastic foam is used, the marine inspector shall be present during the foaming operation. A sample of the foam shall be retained outside the boat and when it sets it shall be used to make a density determination of the material.

(iii) When the boat is completed. At this stage the marine inspector shall check the scantlings of the minor components and the overall compliance with the plans. The manufacturer shall certify that the materials used are in accordance with the approved bill of materials.